

44 miles from the southeast. In 25 minutes the temperature fell from 77° to 54°. A colored church was set on fire by lightning and destroyed, and several other fires were started in a similar manner.

MISCELLANEOUS PHENOMENA.

The winds were more variable in direction than usual during April; southwest, west, or northwest winds prevailed over most of the district, except in the Virginia and Mississippi areas, where they were from the south, and in Florida from the southeast. The average hourly velocity exceeded 10 miles at Norfolk, Hatteras, Charleston, Atlanta, Key West, Miami, Pensacola, and Sand Key. The highest velocity was 47 miles from the northeast at Sand Key on the 21st.

The average number of clear days was 19, of partly cloudy days 5, and cloudy days 6. The percentage of sunshine was more uniformly high than for many months past; at Mobile, Ala., and Tampa, Fla., it was over 80, and it was generally over 70 in nearly all portions of the district, while the least, 61 per cent, occurred at Hatteras. The average number of hours of sunshine was 296, or 74 per cent of the possible amount.

RIVER CONDITIONS.

The heavy rains on the 12th and 13th in Virginia caused a considerable rise in the lower James River, a maximum stage of 22.4 feet occurring on the 13th at Columbia (flood stage 18 feet) and 12.6 feet at Richmond on the 14th (flood stage 10 feet).

In North Carolina the rivers were also high about the middle of the month. Warnings were issued on the 13th and 14th indicating a rapid rise in the Roanoke River to about 32 feet at Weldon; the river attained a stage of 34.8 feet on the 15th (flood stage 30 feet) and then declined rapidly. The warning resulted in the saving of property estimated at \$5,000 in value. A moderate rise took place in the Cape Fear River at Fayetteville from 6.3 feet on the 12th to 29 feet on the 14th. Other rivers in North Carolina experienced no marked fluctuations.

Santee, Edisto, and Salkahatchie systems in South Carolina.—At Camden on the Wateree a stage of 25 feet was reached on the 14th or 1 foot above flood stage, and stages above 20 feet prevailed from the 13th to 15th. The Saluda River approached flood stage at Chappells on the 13th with a maximum stage of 12.2 feet. The Salkahatchie and Santee Rivers were near flood stages until almost the close of the month.

Pedee River system, South Carolina.—At Conway on the Waccamaw the month opened with flood stages followed by a gradual decline. The Pedee at Cheraw was 29.5 feet on the 14th, or 2.5 feet above flood stage, and the stages were above 20 feet from the 13th to 15th. Warnings were issued by the local forecaster at Charleston on the

12th. The river remained above flood stage only one day and the only losses sustained appear to have been due to the enforced suspension of business by lumber manufacturing concerns and probably aggregated about \$4,000. The money value of the property saved by the warnings is estimated at about \$3,000.

The Ocmulgee River was above flood stage at Abbeville, Ga., from the 1st to the 5th, the termination of the March flood, and both the Ocmulgee and the Oconee Rivers experienced moderate rises about the 12th to 16th, while in most of the other rivers of Georgia a steady decline took place from the 1st to nearly the close of the month.

The rivers in Alabama and Mississippi also experienced a steady fall of waters to nearly the close of the month. The Tombigbee at Demopolis, Ala., however, was above flood stage on the 1st, with a maximum for the month of 39.7 feet.

REPORT ON THE FLOOD IN THE TOMBIGBEE AND BLACK WARRIOR RIVERS IN ALABAMA DURING JANUARY TO MARCH, 1913.

[By ALBERT ASHENBERGER, Local Forecaster, Mobile, Ala.]

Moderately high flood stages resulting from irregularly distributed rains in the Tombigbee and Black Warrior River watersheds occurred during the period beginning January 15 and ending April 3. A maximum stage of 50.6 feet occurred at Demopolis on February 5, and the water at Tuscaloosa reached a maximum stage of 56.2 feet on February 28, and other crest stages of 47.8 feet on January 28, 50.8 feet on February 13, and 50.9 feet on March 15. On the last day of February the water at Demopolis rose again and remained above the flood stage until April 3.

A great section of the lowlands on the Black Warrior River below Tuscaloosa and along the lower Tombigbee below Demopolis was overflowed. As far south as Jackson, Ala., which is 130 miles below Demopolis, the lowlands extending about half a mile on each side of the river were inundated; and from Jackson to the mouth of the Tombigbee River, a distance of about 55 miles, the water extended from 1 to 6 miles inland.

The floods are considered a distinct benefit, as they afforded opportunity to float out logs valued at \$250,000, and the flood warnings were issued sufficiently in advance to give time to cut down the trees and other preparatory work. The warnings were also instrumental in protecting from loss live stock and other property of an estimated value of \$10,000. It is estimated that about 30,000 acres of the section flooded is farm lands, but as it is customary to delay planting in the river bottoms until the latter part of April, the loss of money due to the suspension of farm work was probably less than \$1,000. The money value of the loss occasioned by the temporary suspension of labor at lumber mills is estimated at \$3,000.